



COLORADO

Department of Public
Health & Environment

Mitigation Plan for Stratospheric Ozone Intrusion and Wildfire Events Involving Ozone in the Denver Metro/North Front Range Ozone Nonattainment Area

Prepared by the
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September 27, 2018

CONTENTS

| | | |
|-----|--|----|
| 1 | Introduction..... | 1 |
| 2 | Mitigation Plan Requirements..... | 3 |
| 3 | Mitigation Plan Components..... | 4 |
| 3.1 | Public Notification and Education..... | 4 |
| 3.2 | Mitigation Methods | 6 |
| 3.3 | Processes to Collect and Maintain Data | 11 |
| 3.4 | Mechanisms to Consult with other Air Quality Managers..... | 17 |
| 3.5 | Periodic Review, Evaluation, and Public Comment..... | 17 |
| 4 | Submission of Mitigation Plan | 18 |
| | Appendix A: Public Notice Comments and Division Responses..... | 19 |
| | Appendix B: Air Quality Health Advisory for Ozone Template | 21 |
| | Appendix C: Ozone Front Range Alert Example..... | 22 |

Abbreviations

| | |
|-----------------|--|
| AQCC | Air Quality Control Commission |
| AQS | Air Quality System |
| CAA | Clean Air Act |
| DFPC | Division of Fire Prevention and Control |
| DM/NFR | Denver Metro/North Front Range |
| EER | Exceptional Events Rule |
| EPA | Environmental Protection Agency |
| MSA | Metropolitan Statistical Area |
| NAAQS | National Ambient Air Quality Standard |
| NFRMPO | North Front Range Metropolitan Planning Organization |
| NO _x | Oxides of Nitrogen |
| O ₃ | Ozone |
| PMSA | Primary Metropolitan Statistical Area |
| ppm | Parts per Million |
| RAQC | Regional Air Quality Council |
| SIP | State Implementation Plan |
| USDA | U.S. Department of Agriculture |
| VOC | Volatile Organic Compound |

Figures

| | |
|---|----|
| Figure 1: DM/NFR Ozone Nonattainment Area Boundary..... | 2 |
| Figure 2: 2017 North Front Range Area Ozone Monitoring Sites (regulatory) | 13 |

Tables

| | |
|--|----|
| Table 1: Mitigation Plan Checklist..... | 3 |
| Table 2: EPA Approved Regulations in the Colorado SIP..... | 8 |
| Table 3: DM/NFR Ozone Monitoring Locations and Parameters Monitored | 13 |
| Table 4: EPAs Minimum Ozone Monitoring Requirements..... | 15 |
| Table 5: Maximum Ozone Concentrations in Northern Front Range Region - 2017..... | 15 |
| Table 6: Maximum Ozone Concentrations in the Denver Metro Area - 2017 | 16 |

1 INTRODUCTION

In 2007, the EPA promulgated an Exceptional Event Rule (EER), based on the 2005 amendments to Section 319 of the Clean Air Act (CAA), which established a process for the treatment of data influenced by exceptional events. The Revised EER became effective September 30, 2016 and included the requirement for areas with recurring events to develop mitigation plans. 40 CFR 51.930 defines “historically documented or known seasonal events” as three events of the same type and pollutant that recur in a three-year period, for which affected data has either been flagged as having been influenced by an exceptional event, or was the subject of an initial notification to the U.S. Environmental Protection Agency (EPA) of a potential exceptional event.

Under 40 CFR 51.930, the Colorado Department of Public Health and Environment - Air Pollution Control Division, hereafter referred to as “Division”, is required to develop and submit a mitigation plan for stratospheric ozone (O₃) intrusion and wildfire events involving ozone for the Denver Metro/North Front Range (DM/NFR) ozone nonattainment area. The mitigation plan components and implementation methods are described in detail below. This mitigation plan meets the requirements under 51.930 and will assist the cities and counties in the DM/NFR ozone nonattainment area in addressing ozone due to stratospheric ozone intrusion and wildfire events.

A stratospheric intrusion occurs when stratospheric air “folds into the troposphere and descends toward the surface. Over the mountainous western United States, intrusions can reach the ground because of high elevation. Since stratospheric air has elevated ozone concentrations compared to clean, tropospheric air, an intrusion leads to surface ozone values that are comparable with those found in local pollution events. Such intrusions can thus raise ground-level ozone concentrations above the NAAQS threshold”¹.

The revised EER defines a wildfire as “any fire started by an unplanned ignition caused by lightning; volcanoes; other acts of nature; unauthorized activity; or accidental, human-caused actions, or a prescribed fire that has developed into a wildfire. A wildfire that predominantly occurs on wildland is a natural event.”²

According to the relevant timeframes in the Revised EER, the DM/NFR ozone nonattainment area experienced more than three stratospheric ozone intrusion events and more than three wildfire events, causing elevated ozone in the prior three-year period between January 1, 2013 and December 31, 2015. Since the Division had submitted more than three demonstrations for each event type in the DM/NFR ozone nonattainment area under the provisions of 40 CFR 50.14 in a three-year period, it was included in Table 6 of the preamble to the final rule. EPA utilized this action to provide written notice to Colorado that the DM/NFR ozone nonattainment area is henceforth subject to the requirements in 51.930(b) and is subsequently required to develop and submit a mitigation plan to EPA in accordance with the requirements of the rule.

The DM/NFR ozone nonattainment area encompasses the 9 counties of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer (partial county), and Weld (partial county), (see Figure 1). It includes the largest population area in the state according to 2017 estimates, with approximately 2,648,440 people living in the seven-county Denver-metro area and another 648,609 people living in the northern Colorado area of Larimer and Weld counties³. This area includes Rocky Mountain National Park and several wilderness areas.

¹ https://gmao.gsfc.nasa.gov/research/composition/modeling/stratospheric_intrusions/

² <https://www.gpo.gov/fdsys/pkg/FR-2016-10-03/pdf/2016-22983.pdf>

³ <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>

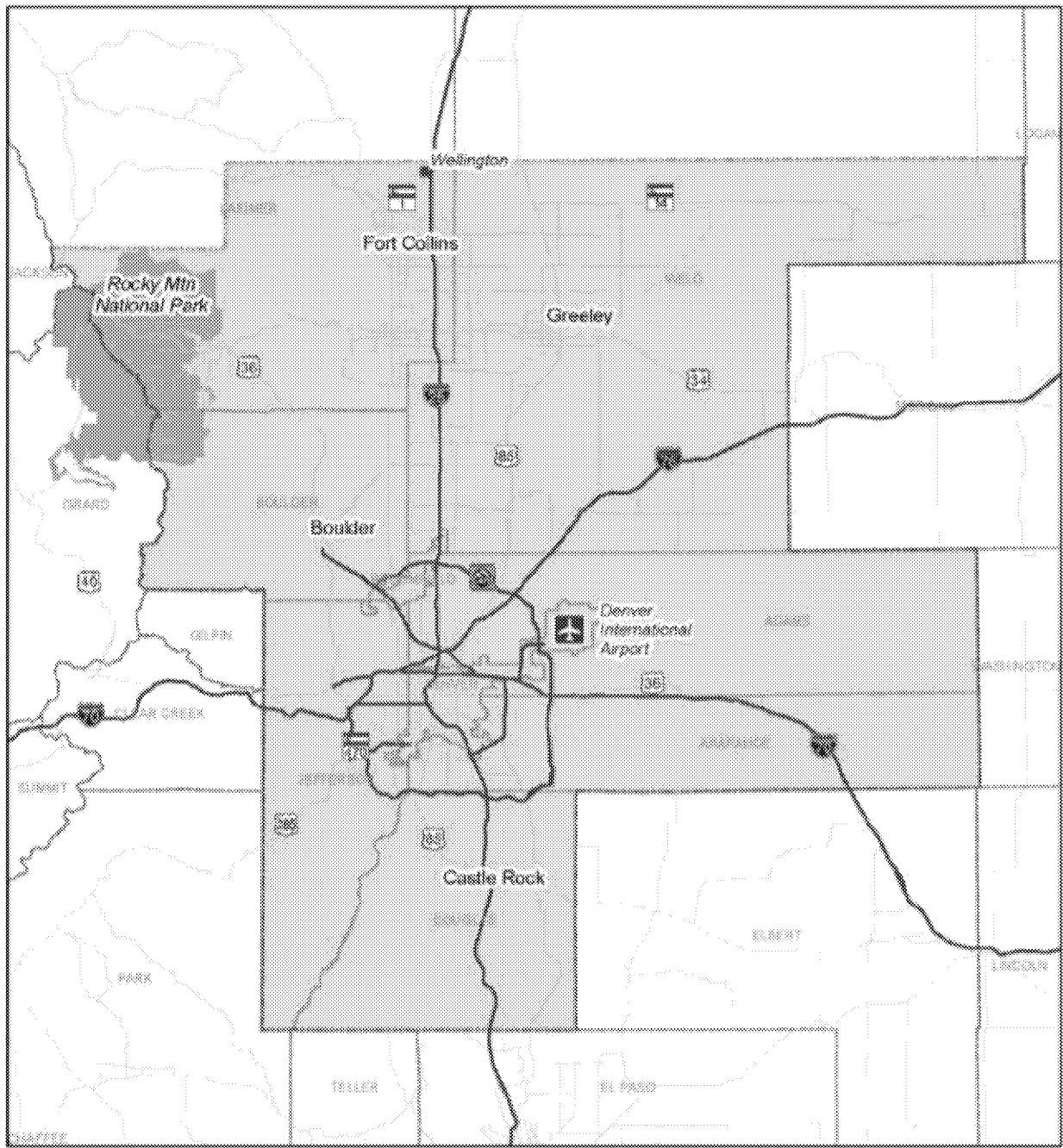


Figure 1: DM/NFR Ozone Nonattainment Area Boundary

Since 2002, the region has complied with all NAAQS, except for the 8-hour ozone standard. The area has been exceeding the federal ozone standards since the early 2000s. In 2007, EPA formally designated the region a nonattainment area for the 1997 ozone standard of 0.08 ppm. This nonattainment designation was re-affirmed in 2012 when the EPA classified the region as a “marginal” nonattainment area for the 2008 ozone standard of 0.075 ppm. The DM/NFR region failed to attain the 2008 ozone standard and was moved up to the next level of classification as a “moderate” area in May of 2016. A moderate area ozone state implementation plan (SIP) was developed by the Regional Air Quality Council (RAQC) with support from the Division and was approved by the Air Quality Control Commission (AQCC) in 2016. The EPA released a more stringent 8-hour ozone standard (0.070 ppm) on October 1, 2015. Colorado submitted area designation recommendations for the 8-hour 2015 ozone

standard in 2016, based on the data from the 2013-2015 monitoring period. The EPA finalized area designations for the 2015 8-hour ozone standard of 0.070 ppm nationwide in April of 2018, designating the DM/NFR region as nonattainment with a marginal area classification. The EPA approved a majority of the moderate ozone SIP on July 3, 2018, effective August 2, 2018⁴.

2 MITIGATION PLAN REQUIREMENTS

The purpose of this mitigation plan is to protect public health from exceedances of the NAAQS through the implementation of the following three mitigation plan components. At a minimum, the state must:

- Provide for the implementation of appropriate measures to protect public health from exceedances or violations of ambient air quality standards caused by exceptional events;
- Provide for public education concerning actions that individuals may take to reduce exposures to unhealthy levels of air quality during and following an exceptional event, and;
- Provide for prompt public notification whenever air quality concentrations exceed or are expected to exceed an applicable ambient air quality standard.

In order to meet these requirements, each mitigation plan must contain provisions for the following:

- 1) Public notification to and education programs for affected or potentially affected communities. Such notification and education programs shall apply whenever air quality concentrations exceed or are expected to exceed a NAAQS with an averaging time that is less than or equal to 24 hours.
- 2) Steps to identify, study and implement mitigating measures, including approaches to address each of the following:
 - a) Measures to abate or minimize contributing controllable sources of identified pollutants.
 - b) Methods to minimize public exposure to high concentrations of identified pollutants.
 - c) Processes to collect and maintain data pertinent to the event.
 - d) Mechanisms to consult with other air quality managers in the affected area regarding the appropriate responses to abate and minimize impacts.
 - e) Provisions for periodic review and evaluation of the mitigation plan and its implementation and effectiveness by the state and interested stakeholders.

Each of these requirements are addressed in this document. To exhibit the completeness of this document and for the ease of the reader, Table 1 below includes a description of each air agency mitigation plan requirement and accompanying citation, in addition to the page number where the requirement is addressed in this document. This checklist was taken directly from the EPA Mitigation Checklist document, available on the EPA Exceptional Events Implementation Tools, Templates and Links website⁵. Note that the original checklist contains both EPA and air agency responsibilities. This table includes air agency responsibilities for brevity.

Table 1: Mitigation Plan Checklist

⁴ <https://raqc.egnyte.com/dl/R5DVOoBfh8>

⁵ <https://www.epa.gov/air-quality-analysis/exceptional-events-implementation-tools-templates-and-links>

| 40 CFR 51.930 Mitigation of Exceptional Events Regulatory Citation | | Plan Page Number(s) |
|---|--|------------------------|
| 51.930(b)(2) | <i>Plan components. At a minimum, each mitigation plan...shall contain provisions for the following:</i> | |
| 51.930(b)(2)(i) | Public notification to and education programs for affected or potentially affected communities. Such notification and education programs shall apply whenever air quality concentrations exceed or are expected to exceed a NAAQS with an averaging time that is less than or equal to 24-hours. | 4-6 |
| 51.930(b)(2)(ii) | Steps to identify, study and implement mitigating measures, including approaches to address each of the following: | 6-12 |
| 51.930(b)(2)(ii)(A) | Measures to abate or minimize contributing controllable sources of identified pollutants. | 6-12 |
| 51.930(b)(2)(ii)(B) | Methods to minimize public exposure to high concentrations of identified pollutants. | 6-12 |
| 51.930(b)(2)(ii)(C) | Processes to collect and maintain data pertinent to the event. | 12-17 |
| 51.930(b)(2)(ii)(D) | Mechanisms to consult with other air quality managers in the affected area regarding the appropriate responses to abate and minimize impacts. | 17 |
| 51.930(b)(2)(iii) | Provisions for periodic review and evaluation of the mitigation plan and its implementation and effectiveness by the State & interested stakeholders. | 17-18 |
| 51.930(b)(2)(iii)(A) | <i>With the submission of the initial mitigation plan according to the requirements in 51.930(b)(3) that contains the elements in 51.930(b)(2), the State must:</i> | |
| 51.930(b)(2)(iii)(A)(1) | Document that a draft version of the mitigation plan was available for public comment for a minimum of 30 days; | Appendix A |
| 51.930(b)(2)(iii)(A)(2) | Submit the public comments received along with its mitigation plan to the Administrator; and | Appendix A |
| 51.930(b)(2)(iii)(A)(3) | In its submission to the Administrator, for each public comment received, explain the changes made to the mitigation plan or explain why the State did not make any changes to the mitigation plan. | Appendix A |
| 51.930(b)(2)(iii)(B) | The State shall specify in its mitigation plan the periodic review and evaluation process that it intends to follow for reviews following the initial review identified in 51.930(b)(2)(iii)(A). | 17-18 |
| 51.930(b)(3)(i) | States shall submit their mitigation plans within 2 years of being notified they are subject to 51.930(b). | 18 |

3 MITIGATION PLAN COMPONENTS

3.1 Public Notification and Education

The Revised EER requires air agencies to provide for prompt public notification whenever air quality concentrations exceed or are expected to exceed an applicable ambient air quality standard. Whenever ozone concentrations exceed or are expected to exceed the NAAQS, the Division provides prompt public notification to the citizens of the DM/NFR area. This public notification is multifaceted and designed to reach the greatest number of people possible. The approaches utilized include:

- Issuance of Front Range ozone Action Day Alerts and air quality health advisories for wildfire smoke or a stratospheric ozone intrusion posted to the Colorado Air Quality Summary webpage⁶. The ozone Action Day Alerts are issued throughout the year as needed and daily from June 1 - August 31 and include health advisories and air quality forecasts for the entire Front Range region. All primary pollutants are forecast on a daily basis, but the emphasis during these summertime months is on ozone. The alerts also include Simple Steps.Better Air (formerly known as the OzoneAware program) (see Appendix C).

⁶ http://www.colorado.gov/airquality/colorado_summary.aspx

- The Division sends each alert and advisory (template included in Appendix B and C to members of the public and local representatives who are on the “ozone.frontrange” list serve. This list serve is open to anyone who subscribes by emailing aq_subscribe@state.co.us.
- The Division posts the advisory on its Facebook page⁷.
- The Division posts the advisory on its Twitter feed⁸.
- County staff within the DM/NFR area post the alert on their Facebook pages and share the information with the local media outlets as needed.
- The Division maintains an ozone email list⁹ for the public and interested stakeholders to receive updates.

The foundation of the public notification system is the identification of exceedances that are occurring or may occur in the near future. This identification relies upon the team of expert meteorologists in the Division. These meteorologists issue forecasts seven days a week and are on duty 365 days a year. This enables rapid identification of exceedances and potential exceedances so that alerts and advisories are sent out promptly. A forecast or analysis for the potential for an ozone exceedance in Colorado and in the DM/NFR region specifically is completed on a daily basis throughout the year.

The Division has worked closely with the RAQC, city and county staff, planning organizations, and interested stakeholders located within the DM/NFR region to educate the public about the problems associated with elevated ozone levels. Elements of the program include: explaining what the public can expect when ozone events occur; what steps can be taken to reduce ozone in Colorado; and, how to minimize their exposure to high concentrations of ozone during events. The public education programs have included but are not limited to:

- The Division maintains an ozone information website¹⁰, with the following sections:
 - **Ozone and your health:** includes information about ground-level ozone, how it affects your health, how you can become more aware, and what you can do to help lower local ozone levels.
 - **Ozone planning information for industry:** includes information for Colorado’s ozone nonattainment area planning, ongoing stakeholder processes related to ozone, state and federal rules related to ozone, and additional information for industry stakeholders.
 - **History of ozone in Colorado:** includes information about ozone planning in the DM/NFR area from 2004-2017.
 - **Current ozone levels:** includes current air quality data.
- The Division posts ozone data from monitoring sites across the DM/NFR area to a website on an hourly basis¹¹.

⁷ <https://www.facebook.com/cdphe.apcd/>

⁸ <https://twitter.com/cdpheapcd?lang=en>

⁹ <https://www.colorado.gov/pacific/cdphe/ozone-planning-information-industry>

¹⁰ <https://www.colorado.gov/pacific/cdphe/categories/services-and-information/environment/air-quality/ozone-information>

¹¹ <https://www.colorado.gov/airquality/report.aspx>

- The Division's Prescribed Burn Program maintains a wood smoke and health website¹² with information on how to protect your health from wood smoke, who is most likely to be affected by smoke, and the symptoms related to smoke exposure.
- Each ozone Advisory issued by the Division (discussed above under public notification) includes information on what actions individuals can take to reduce their exposures. The following public health recommendation language is included in each advisory:

"Active children and adults, older adults, and people with lung disease, such as asthma, should reduce prolonged or heavy outdoor exertion within the affected area."

The Colorado Department of Transportation (CDOT) supports their air quality goals within the DM/NFR region by contracting a portion of Congestion Mitigation and Air Quality Improvement Program funds to the RAQC for the operation of a number of programs intended to encourage the adoption of alternative fuel vehicles, educate the public on ozone and its effects, and support local agency air quality projects¹³. These programs include:

- Alt Fuels Colorado - Vehicles
- Advanced Fleets Technology
- Every Trip Counts - Smart Commute Metro North
- Local Agency Air Quality Projects
- Simple Steps/Better Air (formerly known as the OzoneAware program)
- CDOT posts ozone public education messages on electronic highway signs throughout the DM/NFR when an ozone alert has been issued and also as a preventive measure throughout ozone season.

This public notification and education processes discussed in this section fulfill the 51.930(b)(2)(i) requirements while working to minimize public exposure to high concentrations of identified pollutants per 51.930(b)(2)(ii)(b). As discussed, the public is notified promptly regarding ozone exceedances or expected exceedances. The education programs and components in place are ongoing and apply regardless of attainment status.

3.2 Mitigation Methods

The Revised EER requires a mitigation plan to include steps to identify, study and implement mitigating measures. The following section details various activities to reduce ozone levels in the DM/NFR area. The CAA requires each state containing an ozone nonattainment area to develop a written plan, or SIP, for cleaning the air in that area. The SIP details the steps the state is going to take to improve air quality and meet the applicable air quality standards.

In April 2004, the EPA designated the DM/NFR area as nonattainment for the 1997 8-hour ozone standard, but deferred the effective date of the classification in return for a commitment from the Division, the RAQC and others to implement ozone control measures sooner than required by the CAA.

This commitment was contained in the Denver Early Action Compact¹⁴. In return for this early action and for meeting certain milestones, the EPA agreed to defer the effective date of the nonattainment classification. That deferral expired on November 20, 2007.

Metropolitan Denver and the North Front Range became a "Marginal" nonattainment area for the 1997 federal ozone standard when the EPA deferral expired. The nonattainment

¹² <https://www.colorado.gov/pacific/cdphe/wood-smoke-and-health>

¹³ <https://www.codot.gov/programs/environmental/air-quality/cdot-air-quality-action-plan>

¹⁴ https://www.colorado.gov/airquality/documents/eac/Denver_EAC-WOEv4.pdf

classification was a result of a violation of the federal ozone standard based on data from 2005-2007.

A detailed ozone Action Plan¹⁵ was then developed by the Division, along with the RAQC and the North Front Range Metropolitan Planning Organization (NFRMPO). The resulting attainment plan was approved by the AQCC in December 2008, and submitted by the Colorado governor to the EPA on June 18, 2009. The plan requires greater reductions in ozone levels than in the 2004 ozone Early Action Compact, including the expansion of the motor vehicle inspection and maintenance program from Denver into parts of Larimer and Weld Counties.

The DM/NFR area was classified as a "Marginal" nonattainment area by the EPA effective July 20, 2012. 2013 was the fourth year that the DM/NFR was above the standard for ozone. In early 2014, the AQCC adopted regulatory changes to reduce volatile organic compound (VOC) emissions from the oil and gas sector. The regulatory revisions reduce VOC emissions by 93,000 tons per year in Colorado. In addition, the AQCC approved a Regional Haze Plan¹⁶ in 2010 and 2011 that includes emission reductions for oxides of nitrogen (NO_x). Through these changes, there has been more than 35,000 tons per year of NO_x reductions throughout Colorado by the end of 2018. In addition, new federal vehicle emissions standards and Colorado's motor vehicle inspection and maintenance program also help reduce pollutants that create ozone.

The EPA revised the ozone standard effective October 1, 2015, to 0.070 ppm. Currently, the DM/NFR region is not meeting the 2008 ozone standard of 0.075 ppm. As a result, the Division and the RAQC engaged in an extensive planning and implementation effort, using both voluntary and mandatory air pollution control measures to reduce ground-level ozone.

The DM/NFR region was bumped up from a "Marginal" to a "Moderate" ozone nonattainment area for the 2008 standard in early 2016. As a result, the Division and the RAQC developed a revised SIP¹⁷ to reduce ozone levels. The plan includes detailed technical analysis of the formation of ozone, future trends in ozone levels, and strategies to reduce ozone. Colorado must meet the 2008 ozone standard by 2018, and the SIP includes the measures necessary to meet the deadline. The AQCC approved this SIP on November 17, 2016. The rest of Colorado is meeting the 2008 ozone standard.

In the ozone nonattainment area, on-road mobile sources are the single largest contributor to NO_x emissions and the second largest contributor to VOC emissions. NO_x and VOCs are precursors to ozone. The ozone nonattainment SIP includes a number of measures targeted at reducing precursor emissions from mobile sources. These measures and additional mandatory planning elements include:

- Base (2011) and Future Year (2017) Emissions Inventories
- Reasonable Further Progress Demonstration
- Attainment Demonstration with Weight of Evidence Analysis
- Reasonably Available Control Technology Analysis
- Reasonably Available Control Measures Analysis
- Nonattainment New Source Review Program
- Motor Vehicle Inspection and Maintenance Program
- More stringent inspection/maintenance cut-points in the Denver area.

¹⁵ https://www.colorado.gov/pacific/sites/default/files/AP_PO_Denver-Ozone-Action-Plan-2008.pdf

¹⁶ <https://www.colorado.gov/pacific/cdphe/regional-haze-plan>

¹⁷ https://raqc.egnyte.com/dl/q5zyuX9QC1/FinalModerateOzoneSIP_2016-11-29.pdf

- Tighter emissions requirements for older collector vehicles.
- Motor Vehicle Emissions Budgets
- Contingency Measures Plan

Table 2 below includes EPA approved regulations in the Colorado SIP.

Table 2: EPA Approved Regulations in the Colorado SIP

| Title | Applicable Sections Include |
|---|--|
| AQCC Regulation No. 1, Emission Control For Particulate Matter, Smoke, Carbon Monoxide, And Sulfur Oxides | <ul style="list-style-type: none"> • Requirements for smoke and opacity and particulate matter. • Continuous Emission Monitoring Requirements for New or Existing Sources • Emission Standards for Existing Iron and Steel Plant Operations • Sulfur Dioxide Emission Regulations • Emission Regulations for Certain Electric Generating Stations Owned and Operated by the Public Service Company of Colorado • Restrictions on the Use of Oil as a Backup Fuel • Emission Regulations Concerning Areas Which Are Nonattainment for Carbon Monoxide—Refinery Fluid Bed Catalytic Cracking Units. |
| AQCC Regulation No. 3, Part A, Concerning General Provisions Applicable to Reporting and Permitting | <ul style="list-style-type: none"> • Air Pollutant Emission Notice (APEN) Requirements • Administrative Permit Amendment Procedures • Operational Flexibility • Certification and Trading of Emission Reduction Credits Offset and Netting Transactions • Technical Modeling and Monitoring Requirements • Appendix A, Method For Determining De Minimis Levels For Non-Criteria Reportable Pollutants |
| AQCC Regulation No. 3, Part B, Concerning Construction Permits | <ul style="list-style-type: none"> • General Requirements for Construction Permits • Construction Permit Review Procedures |
| AQCC Regulation No. 3, Part D, Concerning Major Stationary Source New Source Review and Prevention of Significant Deterioration | <ul style="list-style-type: none"> • Permit Review Procedures • Public Comment Requirements • Requirements Applicable to Nonattainment Areas • Negligibly Reactive Volatile Organic Compounds (NRVOCs) • Area Classifications, Redesignation and Air Quality Limitations • Exclusions From Increment Consumption • Innovative Control Technology • Federal Class I Areas • Visibility • Actuals PALs |
| AQCC Regulation No. 3, Part F, Regional Haze Limits—Best Available Retrofit Technology (BART) and Reasonable Progress (RP) | <ul style="list-style-type: none"> • Regional Haze Determinations • Monitoring, Recordkeeping, and Reporting for Regional Haze Limits |

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|---|--|
| AQCC Regulation No. 4, New Wood Stoves and the Use of Certain Woodburning Appliances During High Pollution Days | <ul style="list-style-type: none"> Requirements for the sale and installation of wood stoves and use during high pollution days. |
| AQCC Regulation No. 6, Standards of Performance for New Stationary Sources | <ul style="list-style-type: none"> Standards of Performance for New Sources of Sulfur Dioxide |
| AQCC Regulation Number 7, Control of Ozone Via Ozone Precursors (Emissions of Volatile Organic Compounds and Nitrogen Oxides) | <ul style="list-style-type: none"> Requirements for Storage and Transfer of Volatile Organic Compounds and the Storage of Highly Volatile Organic Compounds Disposal for Volatile Organic Compounds Storage and Transfer of Petroleum Liquid Crude Oil, Petroleum Processing and Refining Surface Coating Operations Use of Solvents for Degreasing and Cleaning Use of Cutback Asphalt Volatile Organic Compound Emissions from Oil and Gas Operations Graphic Arts Pharmaceutical Synthesis Control of Volatile Organic Compound Leaks from Vapor Collection Systems and Vapor Control Systems Located at Gasoline Terminals, Gasoline Bulk Plants, and Gasoline Dispensing Facilities Control of Emissions from Stationary and Portable Engines in the 8-Hour ozone Control Area Rich Burn Reciprocating Internal Combustion Engines |
| AQCC Regulation No. 10, Criteria for Analysis of Conformity | <ul style="list-style-type: none"> Interagency consultation Emission reduction credit for certain control measures Enforceability of design concept and scope and project-level mitigation and control measures |
| AQCC Regulation No. 11, Motor Vehicle Emissions Inspection Program—Part A, General Provisions, Area of Applicability, Schedules for Obtaining Certification of Emissions Control, Definitions, Exemptions, and Clean Screening/Remote Sensing | <ul style="list-style-type: none"> Exemption from Section 42-4-314, C.R.S. for Department of Defense Personnel Participating in the Privately Owned Vehicle Import Control Program Clean Screen/Remote Emissions Sensing |
| AQCC Regulation No. 11, Motor Vehicle Emissions Inspection Program—Part B, Standards and Procedures for the Approval, Operation, Gas Span Adjustment, Calibration and Certification of the Division Approved Test Analyzer Systems for Use in the Basic and Enhanced Areas and Test | <ul style="list-style-type: none"> Approval of the Colo '94 Test Analyzer Systems and Perform Design Specification for the Colo '94 Exhaust Gas Analyzers Span Gases For Use With Colo '94 Test Analyzer Systems Approval of the Colorado Automobile Dealers Transient Mode Test Analyzer System Approval of the Colorado On-Board Diagnostic (OBD) Test Analyzer System |

| | |
|---|--|
| Analyzer Systems for Licensed Dealers in the Enhanced Area | <ul style="list-style-type: none"> • The Colorado On-Board Diagnostics (OBD) Test Analyzer System |
| AQCC Regulation No. 11, Motor Vehicle Emissions Inspection Program—Part C, Inspection Procedures and Requirements for Exhaust Emissions, Fuel Evaporation Control, Visible Smoke Emissions, Emissions Control Systems, Chlorofluorocarbon Leak Detection; and Practices to Ensure Proper Emissions Related Adjustments and Repairs | <ul style="list-style-type: none"> • Pre-inspection Requirements • Exhaust Emissions Inspection Procedures • Emissions Control System Inspection Procedures • On-Board Diagnostic II Inspection Procedures • Evaporative Fuel Control Inspection Procedures • Certification of Emissions Control • Emissions Related Repairs • Clean Screen Inspection Procedures |
| AQCC Regulation No. 11, Motor Vehicle Emissions Inspection Program—Part D, Qualification and Licensing of Emissions Mechanics, Emissions Inspectors and Clean Screen Inspectors; Licensing of Emissions Inspection and Readjustment Stations, Inspection-Only Stations, Inspection-Only Facilities, Fleets, Motor Vehicle Dealer Test Facilities and Enhanced Inspection Centers; Qualification of Clean Screen Inspection Sites; and Registration of Emissions Related Repair Facilities and Technicians | <ul style="list-style-type: none"> • Licensing of Emissions Inspection and Readjustment Stations, Inspection-Only Stations, Inspection-Only Facilities, Enhanced Inspection Centers, Fleet Inspection Stations and Motor Vehicle Dealer Test Facilities • Qualification and Licensing of Emission Mechanics, and Emissions Inspectors • Registration of Emissions Related Repair Facilities • Requirements for Clean Screen/Remote Sensing Sites • Qualification of Clean Screen Emissions Inspectors |
| AQCC Regulation No. 11, Motor Vehicle Emissions Inspection Program—Part E, Prohibited Acts and Penalties to Ensure Proper Inspection Procedures, Adherence to Prescribed Procedures and Effective Emissions Related Repairs | <ul style="list-style-type: none"> • The Grounds Upon Which The License Of An Emissions Mechanic, Emissions Inspector Or Any Type Of AIR Program Inspection Business May Be Suspended, For A Period Of Time Not Less Than Six Months, Or Revoked |
| AQCC Regulation No. 11, Motor Vehicle Emissions Inspection Program—Part F, Maximum Allowable Emissions Limits for Motor Vehicle Exhaust, Evaporative and Visible Emissions for Light-Duty and Heavy-Duty Vehicles | <ul style="list-style-type: none"> • Idle Short Test Concentration Limits for Light-Duty Vehicles and Heavy-Duty Trucks • Transient Test Mass Emissions Limits In Grams/Mile (GPM) • Evaporative Emissions Control Standards • Visible Smoke • Clean Screen Program Maximum Allowable Emissions Limits • On-Board Diagnostic Inspection Passing Criteria |
| AQCC Regulation No. 16, Street Sanding Emissions | <ul style="list-style-type: none"> • Street Sanding Materials Specifications • Requirements Specific to the Denver PM₁₀ Attainment/Maintenance Area |

Minimizing Ozone Exposure during Wildfire Events

A wildland fire is any non-structure fire that occurs in forests, scrublands, grasslands, or marshlands. Per the revised EER, there are two types: wildfires (unplanned) and prescribed fires (intentionally ignited for land management purposes). Since wildfires are unplanned, methods to minimize public exposure to high concentrations of pollutants are addressed largely through fire suppression. Wildfire smoke that is transported from wildfires located outside of the state of Colorado have resulted in ozone exceedances beyond the regulatory control of the Division. However, public notification and education play a role, as described in Section 3.1.

AQCC Regulation No. 9, Open Burning, Prescribed Fire, and Permitting includes requirement for three types of outdoor burning that may require a smoke permit in Colorado:

- Open burns are small burns typical for wood piles, vegetation and yard waste.
- Air curtain destructors are outdoor incinerators for burning forest products and debris.
- Prescribed fires are large burns for forest or range management.

A prescribed fire, also known as a controlled burn, refers to the controlled application of fire by a team of fire experts under specified weather conditions that help restore health to fire-adapted environments. By safely reducing excessive amounts of brush, shrubs, and trees, encouraging the new growth of native vegetation, and maintaining the many plant and animal species whose habitats depend on periodic fire, prescribed burning helps reduce the catastrophic damage of wildfire on our lands and surrounding communities. Prescribed fire is one of the most effective tools in preventing the outbreak and spread of wildfires. Each permitted prescribed fire is subject to inspection and compliance monitoring by the Division.

The Division maintains a smoke management permit website, including information related to regulatory requirements, forecasting and monitoring resources, wood smoke and health information, a fire management procedures guide, and a comprehensive Frequently Asked Questions document for burn programs¹⁸. Each prescribed fire in Colorado requires a smoke permit to protect air quality for health, welfare, and visibility, and to prevent out-of-control prescribed fires.

The Colorado Department of Public Safety Division of Fire Prevention and Control (DFPC) administers the state's prescribed burning certification program. DFPC also issues burn restriction notices¹⁹ that are posted on numerous media and government websites and at physical locations throughout Colorado. DFPC develops an annual Wildfire Preparedness Plan, in collaboration with representative of the County Sheriffs of Colorado, a representative of the Colorado State Fire Chiefs' Association, the Director of the Office of Emergency Management and the Adjutant General.

3.3 Processes to Collect and Maintain Data

The Revised EER requires air agencies to develop processes to collect and maintain data pertinent to the event. This section provides information about the Division's efforts to collect and maintain data related to the events.

¹⁸ <https://www.colorado.gov/pacific/cdphe/smoke-management-permits>

¹⁹ <http://www.coemergency.com/p/fire-bans-danger.html>

On March 12, 2008, the EPA promulgated a new level of the NAAQS for ozone of 0.075 ppm as an annual fourth-highest daily maximum eight-hour concentration, averaged over three years. This made a significant change in the number of ozone monitors that violated the standard.

On October 1, 2015, the EPA again strengthened the NAAQS for ground level ozone to 0.070 ppm (effective December 28th, 2015). The Division currently operates five sites out of twenty-two in the state that have three-year design values (2015 - 2017) in excess of the current eight-hour ozone NAAQS standard of 0.070 ppm. These sites are all located in the Denver DM/NFR region and are: Chatfield State Park (0.077 ppm), Welch (0.075 ppm), Rocky Flats North (0.077 ppm), Fort Collins West (0.075 ppm) and National Renewable Energy Laboratory or NREL (0.080 ppm).

The current ozone ambient air monitoring network in the DM/NFR region consists of 14 stations operated by the Division and one location (2 stations) operated by the National Park Service and the EPA in Rocky Mountain National Park, shown in Figure 2 and outlined in Table 3.

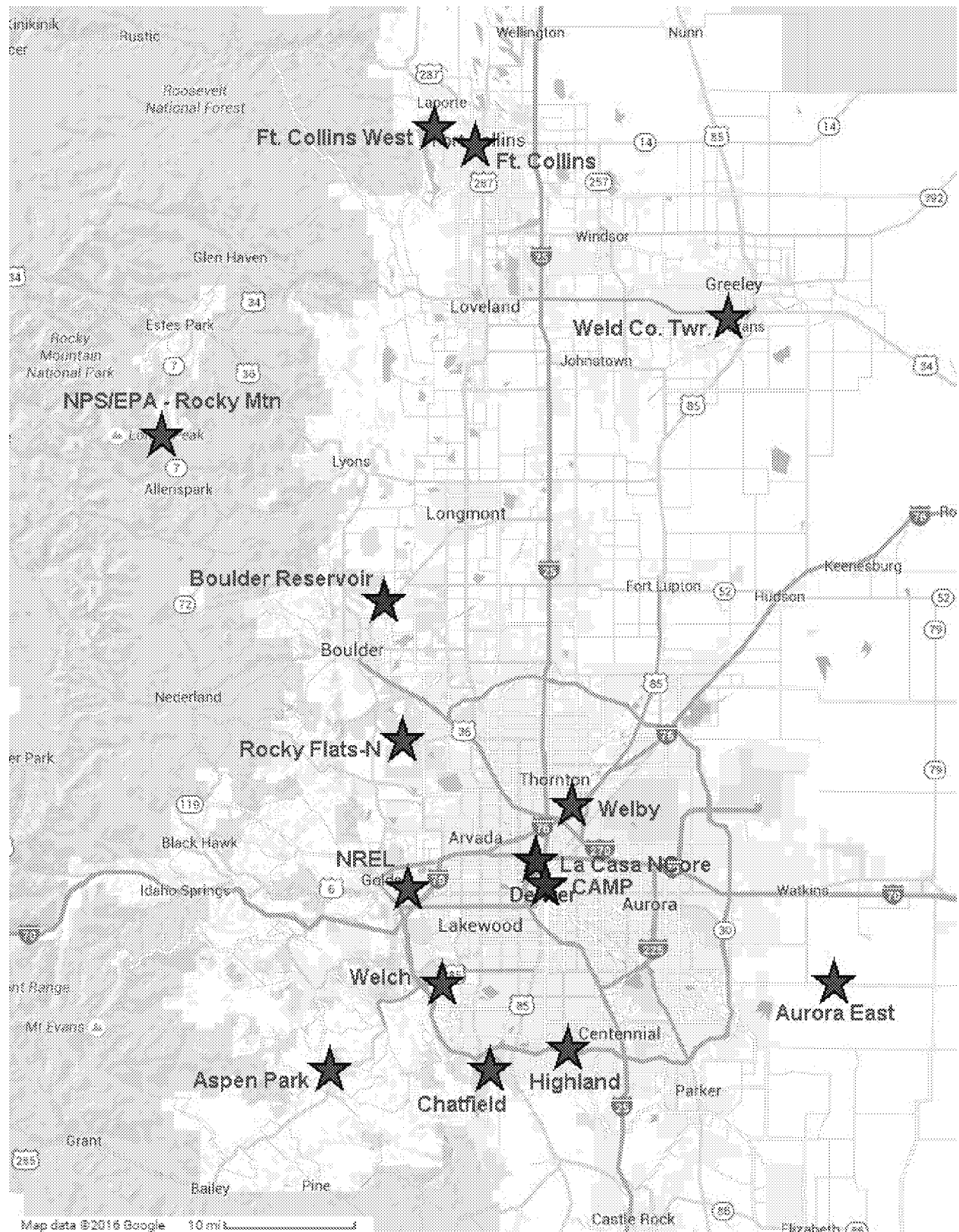


Figure 2: 2017 North Front Range Area Ozone Monitoring Sites (regulatory)

Table 3: DM/NFR Ozone Monitoring Locations and Parameters Monitored

| AQS# | Site Name | Address | Site Started | Elevation (m) | Latitude | Longitude |
|------|-----------|---------|--------------|---------------|----------|-----------|
|------|-----------|---------|--------------|---------------|----------|-----------|

| | Parameter | POC | Parameter Started | Orient/Scale | Monitor | Type | Sample |
|----------------|-------------------------|----------------------------|-------------------|--------------|------------|-----------|-------------|
| 08 001 3001 | Welby | 3174 E. 78th Ave. | | 07/1973 | 1,554 | 39.838119 | -104.94984 |
| | O ₃ | 2 | 07/1973 | P.O. Neigh | TAPI 400E | SLAMS | Continuous |
| 08 005 0002 | Highland Reservoir | 8100 S. University Blvd | | 06/1978 | 1,747 | 39.567887 | -104.957193 |
| | O ₃ | 1 | 06/1978 | P.O. Neigh | TAPI 400E | SLAMS | Continuous |
| 08 005 0006 | Aurora - East | 36001 E. Quincy Ave. | | 04/2011 | 21,552301 | 39.63854 | -104.56913 |
| | O ₃ | 1 | 04/2009 | P.O. Neigh | TAPI 400E | SLAMS | Continuous |
| 08 013 0014 | Boulder Reservoir | 5565 N. 51st | | 09/2016 | 1,586 | 40.070016 | -105.220238 |
| | O ₃ | 1 | 09/2016 | H.C. Urban | TAPI 400E | SLAMS | Continuous |
| 08 031 0002 | CAMP | 2105 Broadway | | 01/1965 | 1,593 | 39.751184 | -104.987625 |
| | O ₃ | 6 | 03/2012 | P.O. Neigh | TAPI 400E | SLAMS | Continuous |
| 08 031 0026 | La Casa | 4587 Navajo St. | | 10/2013 | 1,594 | 39.779429 | -105.005174 |
| | O ₃ | 2 | 10/2012 | Neigh/Urban | TAPI 400E | NCore | Continuous |
| 08 035 0004 | Chatfield State Park | 11500 N. Roxborough Pk. Rd | | 04/2004 | 1,676 | 39.534488 | -105.070358 |
| | O ₃ | 1 | 05/2005 | H.C. Urban | TAPI 400E | SLAMS | Continuous |
| 08 059 0005 | Welch | 12400 W. Hwy. 285 | | 08/1991 | 1,742 | 39.638781 | -105.13948 |
| | O ₃ | 1 | 08/1991 | P.O. Neigh | TAPI 400E | SLAMS | Continuous |
| 08 059 0006 | Rocky Flats - N | 16600 W. Hwy. 128 | | 06/1992 | 1,802 | 39.912799 | -105.188587 |
| | O ₃ | 1 | 09/1992 | H.C. Urban | TAPI 400E | SLAMS | Continuous |
| 08 059 0011 | NREL | 2054 Quaker St. | | 06/1994 | 1,832 | 39.743724 | -105.177989 |
| | O ₃ | 1 | 06/1994 | P.O. Neigh | TAPI 400E | SLAMS | Continuous |
| 08 059 0013 | Aspen Park | 26137 Conifer Rd. | | 04/2011 | 2,467 | 39.540321 | -105.296512 |
| | O ₃ | 1 | 04/2011 | P.O. Neigh | TAPI 400E | SLAMS | Continuous |
| 08 069 0007 | NPS - Rocky Mountain NP | Preservation Dr. | | 10/1986 | 2,748 | 40.278145 | -105.545660 |
| | O ₃ | 1 | | Background | Thermo 49C | Non-EPA | Continuous |
| 08 069 0011 | Fort Collins - West | 3416 La Porte Ave. | | 05/2006 | 1,571 | 40.592543 | -105.141122 |
| | O ₃ | 1 | 05/2006 | H.C. Urban | TAPI 400E | SLAMS | Continuous |
| 08 069 1004 | Fort Collins - Mason | 708 S. Mason St. | | 12/1980 | 1,524 | 40.57747 | -105.07892 |
| | O ₃ | 1 | 12/1980 | P.O. Neigh | TAPI 400E | SLAMS | Continuous |
| 08 123 0009 | Greeley - County Tower | 3101 35th Ave. | | 06/2002 | 1,484 | 40.386368 | -104.73744 |
| | O ₃ | 1 | 06/2002 | H.C. Neigh | TAPI 400E | SLAMS | Continuous |

EPA's monitoring requirements for ozone include placing a certain number of monitors in areas with high populations. For example, in Metropolitan Statistical Areas (MSAs) with a population greater than ten million people, EPA recommends the placement of at least four monitors in areas with design value concentrations that are greater than or equal to 85% of the ozone standard. The largest MSA in Colorado is the Denver-Aurora-Lakewood Primary Metropolitan Statistical Area (PMSA). This PMSA includes the counties of Adams, Arapahoe, Broomfield, Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, and Park. There are seven different MSAs in Colorado. Table 4 below lists EPA's ozone monitoring requirements. The Division's compliance with MSA requirements is presented in each Annual Monitoring Network Plan²⁰.

Table 4: EPAs Minimum Ozone Monitoring Requirements

| MSA population ^{1,2} | Most recent 3-year design value concentrations \geq 85% of any Ozone NAAQS ³ | Most recent 3-year design value concentrations < 85% of any Ozone NAAQS ^{3,4} |
|-------------------------------|---|--|
| >10 million | 4 | 2 |
| 4-10 million | 3 | 1 |
| 350,000-<4 million | 2 | 1 |
| 50,000-<350,000 ⁵ | 1 | 0 |

¹Minimum monitoring requirements apply to the MSA.

²Population based on latest available census figures.

³The ozone NAAQS levels and forms are defined in 40 CFR Part 50.

⁴These minimum monitoring requirements apply in the absence of a design value.

⁵MSA must contain an urbanized area of 50,000 or more population.

2017 Ozone Monitoring

In the Northern Front Range, the first and fourth maximum eight-hour concentrations recorded in 2017 for each ozone monitoring site in Larimer and Weld Counties are listed in the Table 5 (including the NPS site). Also listed in the table are the three-year design values (2015-2017) for each site with enough data available to calculate them. Emissions from industrial facilities and electric utilities, oil and gas development, motor vehicle exhaust, gasoline vapors and chemical solvents are some of the major sources of NO_x and VOCs in the atmosphere. In the presence of sunlight, NO_x and VOCs chemically react to form ground level ozone. Weld County is an area of significant oil and gas development, which potentially contributes to ozone forming compounds or "precursors" in the lower atmosphere.

Table 5: Maximum Ozone Concentrations in Northern Front Range Region - 2017

| Site ID | Site Name | 1 st eight-hour Max (ppm) | 4 th eight-hour Max (ppm) | 2015-2017 Design Value (ppm) |
|-------------|----------------------|--------------------------------------|--------------------------------------|------------------------------|
| 08 069 0007 | NPS - Rocky Mtn. NP | 0.074 | 0.067 | 0.068 |
| 08 069 0011 | Fort Collins - West | 0.078 | 0.075 | <i>0.075</i> |
| 08 069 1004 | Fort Collins - Mason | 0.070 | 0.066 | 0.068 |
| 08 123 0009 | Greeley - Tower | 0.076 | 0.072 | 0.070 |

Fort Collins West in the table above shows a 2015-2017 Design Value above the current 2015 8-hour ozone NAAQS standard of 0.070 ppm. That value is **bolded** and *italicized* to highlight that it is above the current standard.

²⁰ https://www.colorado.gov/airquality/tech_doc_repository.aspx

The first and fourth maximum eight-hour concentrations recorded in 2017 for each ozone monitoring site in the metropolitan Denver area are listed in Table 6. Also listed are the three-year design values (2015-2017) for each site with enough data available to calculate them. The 2015 standard of 0.070 ppm will be used to compare to data sets that have three years of data beginning in 2015 or 2015-2017 data.

Table 6: Maximum Ozone Concentrations in the Denver Metro Area - 2017

| Site ID | Site Name | 1 st eight-hour Max (ppm) | 4 th eight-hour Max (ppm) | 2015-2017 Design Value (ppm) |
|-------------|----------------------|--------------------------------------|--------------------------------------|------------------------------|
| 08 001 3001 | Welby | 0.071 | 0.068 | 0.067 |
| 08 005 0002 | Highland | 0.076 | 0.072 | ----* |
| 08 005 0006 | Aurora - East | 0.076 | 0.069 | 0.067 |
| 08 013 0011 | Boulder Reservoir | 0.078 | 0.073 | ----* |
| 08 031 0002 | CAMP | 0.069 | 0.067 | 0.068 |
| 08 031 0026 | La Casa | 0.069 | 0.068 | 0.069 |
| 08 035 0004 | Chatfield State Park | 0.078 | 0.074 | 0.077 |
| 08 059 0005 | Welch | 0.075 | 0.075 | 0.075 |
| 08 059 0006 | Rocky Flats - N | 0.078 | 0.075 | 0.077 |
| 08 059 0011 | NREL | 0.081 | 0.076 | 0.079 |
| 08 059 0013 | Aspen Park | 0.072 | 0.068 | 0.070 |

*Highland re-commenced monitoring in Oct. 2015. The Boulder Reservoir site started monitoring in Aug. 2016.

Four of the eleven monitors have concentrations greater than the level of the 2015 8-hour NAAQS standard for ozone of 0.070 ppm. Their values are **bolded** and *italicized* to highlight them.

Each of the 14 continuous ozone monitors operated by the Division within the DM/NFR provide real-time data that are available to the Division at any time. Each monitor undergoes a daily automatic system quality check and a weekly in-person quality control check. The Division performs bi-annual audits on each ozone monitor. Audits are conducted more frequently if necessary, for example, if several exceedances occur at the same site, an audit may be conducted outside of the bi-annual schedule to verify that the monitoring system is working properly. Monthly data is entered AQS approximately six weeks after the end of each month. All data is validated annually.

All quality assurance and quality control procedures are conducted in accordance with 40 CFR 58²¹. See the Colorado 2018 Annual Monitoring Network Plan²² and the 2016 Air Quality Data Report²³ for a description of the Division's data quality assurance and quality control procedures. Additionally, the Division maintains an ozone tracking workbook. This workbook is used to track ozone exceedances of the NAAQS by monitor and date. Information regarding the number, type, and location of air quality advisories the Division issues each year is logged in a spreadsheet for future reference. The Division also saves an electronic copy of each air quality advisory that is forwarded to the county health department in the affected area.

²¹ <https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol6/pdf/CFR-2015-title40-vol6-part58.pdf>

²² https://www.colorado.gov/airquality/tech_doc_repository.aspx?action=open&file=2018AnnualNetworkPlan.pdf

²³ https://www.colorado.gov/airquality/tech_doc_repository.aspx?action=open&file=2016AnnualDataReport.pdf

3.4 Mechanisms to Consult with other Air Quality Managers

As detailed in Section 3.1, the Division developed air quality health advisory and ozone alert procedures to use social media and a list serve to notify county staff, interested stakeholders, and the public of impending events expected to affect air quality and public health. Division staff consult with air quality staff from state, federal, and planning organizations during interagency consultation group meetings on a regular basis.

For the development of this plan the Division communicated and coordinated with the Western U.S. Mitigation Plan Workgroup, in addition to various Federal, county, and city staff. The Division also hosts educational webinars through the Colorado Air Quality Collaborative, a group with members from over 30 county public health and environment departments across Colorado. The main goal of the Collaborative is to promote consistency and collaboration on air quality issues in local communities, cities and counties through education and outreach. The Collaboration also offers local governments a direct point of contact for any air quality concerns they may have. The Division hosted a wildfire smoke webinar in June 2018 and plans to focus on this topic during an upcoming Collaboration meeting. The Division will consult with city and county staff within the DM/NFR as needed.

3.5 Periodic Review, Evaluation, and Public Comment

The Division has made provisions for periodic review and evaluation of the mitigation plan and its implementation and effectiveness by the State and interested stakeholders. A draft version of this plan was posted on the Division's webpage²⁴ for a 30-day public comment period of August 15, 2018 to September 14, 2018. The mitigation plan was also distributed to the Division's Public Permit Notice list serve on August 14, 2018. A copy of the public notice communication, along with any comments received, will be included in Appendix A and submitted to EPA, consistent with the requirements of 40 CFR 51.930(b)(2)(iii)(A)(2). With each comment, the Division will include an explanation of the changes that were made to the plan as a result of the comment or why no changes to the plan were necessary.

Per 51.930(b)(2)(iii)(B) and as recommended in the Revised Exceptional Event Rule²⁵, the Division will conduct a review and revision, if appropriate, and recertification of this mitigation plan five years after this mitigation plan is finalized. The review process will consider the adequacy and status of the main elements of the mitigation plan. If any substantive changes related to major elements of this plan occur, the Division will determine if an earlier update of the mitigation plan is necessary.

The Division is currently evaluating the effectiveness of the public notification and education process and will continue to do so as new technology methods of communication become available. The evaluation of this plan will also consider conditions that contribute to ozone exceedances in the DM/NFR region, the status and effectiveness of control measures and availability of new control measures, and methods to build upon the current consultation process.

The Division will consult with the RAQC, planning organizations, and interested stakeholders to gain their feedback and suggestions for mitigation plan revisions. While EPA is requiring air agencies to submit public comments on their initial mitigation plans, it is not requiring the agencies to submit public comments on subsequent reviews and plan reassessments. The

²⁴ https://www.colorado.gov/airquality/tech_doc_repository.aspx

²⁵ https://www.epa.gov/sites/production/files/2016-09/documents/exceptional_events_rule_revisions_2060-as02_final.pdf

Division will determine whether a public comment period is necessary for the mitigation plan revisions based on the type and extent of changes to the plan.

4 SUBMISSION OF MITIGATION PLAN

EPA issued notice that the Division was subject to 51.930(b) on September 30, 2016, therefore this mitigation plan was due to EPA no later than September 30, 2018. The Division submitted this plan to EPA on September 27, 2018, within the two year window pursuant to 51.930(b)(3)(i).

DRAFT

APPENDIX A: PUBLIC NOTICE COMMENTS AND DIVISION RESPONSES

A draft version of this plan was posted on the Division's webpage^{26 27} for a 30-day public comment period of August 15, 2018 to September 14, 2018. The mitigation plan was also distributed to the Division's Public Permit Notice list serve on August 14, 2018. The Division received no comments on this mitigation plan. Text in the first paragraph on page 3 was revised to indicate that EPA approved a majority of the moderate ozone SIP on July 3, 2018, effective August 2, 2018. The 2015-2017 design value for the NREL site was revised to 0.079 ppm on page 16, per EPA's concurrence with the September 2 and 4, 2017 Exceptional Events demonstration. The Division also made a number of minor formatting and spelling/grammatical changes to this document that were not substantive.

Announcement of Public Comment Opportunity:

<https://www.colorado.gov/pacific/cdphe/air-division-public-comment>

CDPHE - Colorado.gov | Exceptional Events | CDPHE Intranet | APAOH | Webcast Site | CDPHE - Colorado.gov | Urbanova_SCSite | Colorado road construction

 **COLORADO**
Department of Public Health & Environment

Services & information | Boards & commissions | Divisions | Concerns & emergencies | Data | News | LPHAs

Air Pollution Control Division public comment

[Back to Air Pollution Control Division topics](#)

The following items are available for public comment:

- [Permit public notices.](#)
- [Alternative AIMM public notices.](#)
- [2018 Annual Monitoring Network Plan.](#)
- [Mitigation plans.](#)

Send comments or questions to: cdphe.commentsapcd@state.co.us. Please include your name and organization, if applicable.

https://www.colorado.gov/airquality/tech_doc_repository.aspx#misc2

CDPHE - Colorado.gov | Exceptional Events | CDPHE Intranet | APAOH | Webcast Site | CDPHE - Colorado.gov | Urbanova_S

Miscellaneous

- DM/NFR Mitigation Plan 2018
- Alamosa Mitigation Plan 2018
- Prowers Mitigation Plan 2018
- Guidance for County and Local Agencies Conducting Special Air Quality Studies
- Grand Junction Blowing Dust Climatology
- Lamar Natural Events Action Plan 2012
- Lamar Blowing Dust Climatology 2010
- Alamosa Natural Events Action Plan 2003
- Lamar Natural Events Action Plan 2003
- An Evaluation of Federal Land Manager Activities that may Impact Air Quality Related Values in Class I Areas
- Hygiene, Colorado PM10 Receptor Modeling Study 2000
 - Hygiene, Colorado PM10 Receptor Modeling Study - Appendices

²⁶ <https://www.colorado.gov/pacific/cdphe/air-division-public-comment>

²⁷ https://www.colorado.gov/airquality/tech_doc_repository.aspx

August 14, 2018 Public Comment Notice Email to the APCD Permit Public Notice List:

----- Forwarded message -----

From: **Colorado Air Pollution Control Division** <christine.hoeftler@state.co.us>

Date: Tue, Aug 14, 2018 at 12:43 PM

Subject: Mitigation Plan Public Comment Period

To: richard.coffin@state.co.us



Under federal regulation (40 CFR 51.930), the Colorado Department of Public Health and Environment Air Pollution Control Division is required to develop and submit to the U.S. Environmental Protection Agency mitigation plans for

windblown dust events in Alamosa and Prowers Counties and for stratospheric ozone intrusion and wildfire events involving ozone in the Denver Metro/North Front Range ozone nonattainment area. The purpose of this email is to inform you that the mitigation plans are now available for comment until September 14, 2016 at 5:00 p.m.

The mitigation plans are available on our website: https://www.colorado.gov/airquality/tech_doc_repository.aspx#misc2.

Please send comments to cdphe.commentsapcd@state.co.us.

Thank you.

See what's happening on our social sites



Colorado Air Pollution Control Division | 4300 Cherry Creek Drive South, Denver, CO 80246

APPENDIX B: AIR QUALITY HEALTH ADVISORY FOR OZONE TEMPLATE

Air Quality Health Advisory for Ozone

Issued for portions of [region] Colorado

Issued at [time, day, month, and year]

Issued by the Colorado Department of Public Health and Environment

Affected Area: [description of the affected counties and cities]

Advisory in Effect: [time, date, month, year when the advisory was issued and is in effect until]

Public Health Recommendations: *Active children and adults, older adults, and people with lung disease, such as asthma, should reduce prolonged or heavy outdoor exertion within the affected area.*

Outlook: [forecast description, for example, "Ozone concentrations are expected to reach the Unhealthy for Sensitive Groups category Tuesday afternoon before improving to the Moderate category by late Tuesday evening."]

For the latest Colorado statewide air quality conditions, forecasts, and advisories, visit:
http://www.colorado.gov/airquality/colorado_summary.aspx

Social Media:

<http://www.facebook.com/cdphe.apcd>

<http://twitter.com/#!/cdpheapcd>

*** You are subscribed to Ozone.FrontRange. If you wish to unsubscribe, or modify your preferences please visit <https://mailman.listserve.com/listmanager/listinfo/colorado.airquality> ***

APPENDIX C: OZONE FRONT RANGE ALERT EXAMPLE

Front Range

Ozone Action Day Alert (until midnight 07/17/2018)

The Colorado Department of Public Health and Environment and the Regional Air Quality Council have issued an **OZONE ACTION DAY ALERT** at 4 p.m. on Tuesday, July 17, 2018 for the Front Range Urban Corridor from El Paso County north to Larimer and Weld counties, including the Denver-Boulder area, Colorado Springs, Fort Collins and Greeley.

Warm temperatures and sunshine will allow ozone concentrations to reach the Unhealthy for Sensitive Groups category on Tuesday.

This Ozone Action Day Alert will remain in effect until midnight, Tuesday night, July 17, 2018.

For statewide conditions, forecasts and advisories, visit:

https://www.colorado.gov/airquality/colorado_summary.aspx

The highest **Ozone** related AQI at 1 o'clock PM Mountain Standard Time on July 17, 2018, is **51** which indicates **Moderate** ozone air quality. It was recorded by the **CHAT** ambient ozonemonitor. Unusually sensitive individuals may experience respiratory symptoms. **Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion.**

The highest **Particulate Matter (PM2.5)** related AQI at 1 o'clock PM Mountain Standard Time on July 17, 2018, is **42** which indicates **Good** Particulate Matter (PM2.5) air quality. It was recorded by the **I25GLO** ambient monitor.

Front Range Air Quality Forecast & Colorado Smoke Outlook

FRONT RANGE AIR QUALITY FORECAST:

Tuesday, July 17, 2018, 2:30 PM MDT

Ozone concentrations are expected to be in the Moderate to Unhealthy for Sensitive Groups range on Tuesday, and in the Good to Moderate range on Wednesday. Ozone concentrations in the Unhealthy for Sensitive Groups category will be most likely for the south and west suburbs of the Denver Metro area, in Greeley, and Colorado Springs on Tuesday. In these areas, **active children and adults, and people with lung disease, such as asthma**, should reduce prolonged or heavy outdoor exertion until 8 PM on Tuesday. Elsewhere in the Front Range region, **unusually sensitive people** should consider reducing prolonged or heavy outdoor exertion from noon until 10 PM on Tuesday and Wednesday.

Fine Particulate Matter concentrations are expected to be in the Good to Moderate range on Tuesday, and in the Good category on Wednesday. Moderate conditions are most likely within the Denver Metro Area. **Unusually sensitive people** should consider reducing prolonged or heavy exertion in these areas on Tuesday.

Carbon Monoxide concentrations are expected to be in the Good category on Tuesday and Wednesday.

Nitrogen Dioxide concentrations are expected to be in the Good category on Tuesday and Wednesday.

Visibility on Wednesday is expected to be Good to Moderate.

COLORADO SMOKE OUTLOOK:

Tuesday, July 17, 2018, 2:30 PM MDT

The 6,822 acre **Lake Christine** wildfire is located close to Basalt in Eagle County. Areas of smoke should remain in close vicinity to the fire for much of the day on Tuesday, as winds at the fire will be out of the northwest with the possibility of areas of smoke to spread to the east and south of the fire during the afternoon and evening hours. Isolated thunderstorms are possible on Tuesday which could send smoke in any direction. Any smoke that does develop Tuesday night will likely drain into the Roaring Fork Valley, possibly bringing periods of mainly light to moderate smoke to Basalt Wednesday morning.

Light to moderate smoke is also possible near prescribed fires and small wildfires around the state.

What if there is a wildfire or smoke in your area?

The focus of the Colorado Smoke Outlook is on large fires (e.g., greater than 100 acres in size). Nevertheless, smoke from smaller fires, prescribed fires, and/or smoke from new fires not yet known to CDPHE air quality meteorologists may cause locally heavy smoke. If there is smoke in your neighborhood, see the public health recommendations above.

Public health recommendations for areas affected by smoke:

If smoke is thick or becomes thick in your neighborhood you may want to remain indoors. This is especially true for those with heart disease, respiratory illnesses, the very young, and the elderly. Consider limiting outdoor activity when moderate to heavy smoke is present. Consider relocating temporarily if smoke is present indoors and is making you ill. **IF VISIBILITY IS LESS THAN 5 MILES IN SMOKE IN YOUR NEIGHBORHOOD, SMOKE HAS REACHED LEVELS THAT ARE UNHEALTHY .**

Summer Ozone Program

Ground-level ozone is an air pollution problem that impacts the health of all Coloradans. Exposure can cause acute respiratory problems and trigger asthma attacks.

During Ozone Action Alerts, avoid rigorous outdoor activity during the heat of the day. Prolonged exposure can cause long-lasting damage to your lungs.

You CAN make a difference by doing your part to improve air quality along Denver's Front Range. Combining or skipping just two car trips a week has a positive impact on our air quality. Find other easy solutions that fit your lifestyle from Simple Steps. Better Air. (<http://www.SimpleStepsBetterAir.org>) , a program of the Regional Air Quality Council.

Additional Information

WHAT IS AN ACTION DAY?: An Action Day for fine particulate matter, carbon monoxide, ozone or other pollutants indicates that either current air quality is unhealthy or conditions are expected to worsen later in the day or on the next day. Action Days for air pollutants generally indicate that air quality will be in either the Unhealthy or Unhealthy-for-Sensitive-Groups categories according to the Air Quality Index. Action Days always convey overarching public health recommendations, and, according to season, trigger a variety of mandatory and voluntary pollution prevention measures. For example, during the summer open

burning is prohibited when an Action Day for ozone and/or fine particulates is in effect. During the winter, residential burning restrictions are in effect when an Action Day for Visibility is in effect.

For a detailed description of both the **AIR QUALITY INDEX** and the **VISIBILITY STANDARD INDEX** please visit <https://www.colorado.gov/airquality/brochure.aspx>

COLORADO OPEN BURN FORECAST: For those with permits for open burning, that is the burning of waste materials or vegetation outside, check the following webpage to find out if open burning is allowed today. Keep in mind that open burning is prohibited when an Action Day is in effect:

https://www.colorado.gov/airquality/burn_forecast.aspx

FOR CURRENT FRONT RANGE ACTION DAYS/ADVISORIES:

<https://www.colorado.gov/airquality/advisory.aspx>

FOR CURRENT AIR QUALITY CONDITIONS STATEWIDE:

https://www.colorado.gov/airquality/air_quality.aspx

SOCIAL MEDIA:

<https://www.facebook.com/cdphe.apcd>

<https://twitter.com/cdpheapcd>

AIR QUALITY NOTIFICATIONS:

https://www.colorado.gov/airquality/request_alerts.aspx (CDPHE automated e-mail alerts)

<http://www.enviroflash.info/signup.cfm> (CDPHE forecasts via automated e-mails from the EPA)